

## **MEMORANDUM**

**SUBJECT:** Decision Document for the Time Critical Removal Action at the San Jacinto River Waste Pits Site, Harris County, Texas

**FROM:** Valmichael Leos, Remedial Project Manager (RPM)  
Remedial Branch LA, NM, OK Section (6SF-RL)

**TO:** Charles Faultry, Associate Director  
Remedial Branch (6SF-R)

**THRU:** Carlos Sanchez, Chief of Arkansas, Texas Section  
Remedial Branch (6SF-RA)

### **I. PURPOSE**

This Memorandum documents EPA's decision for selection of a removal option at the San Jacinto River Waste Pits site (the "site") located near Houston, Texas in the city of Baytown, Harris County, Texas (Attachment 1). On May 11, 2010 an administrative order on consent (AOC) was issued to the International Paper Company, Inc. and McGinnes Industrial Maintenance Corporation (the "RPs") for a Time Critical Removal Action (TCRA) at the site. The RPs were requested to submit a technical memorandum that will evaluate all removal option alternatives that will satisfy the performance requirements outlined in the TCRA Memorandum dated April 2, 2010 (Action Memo). A final technical memorandum was submitted to EPA on June 15, 2010 for review and analysis.

### **II. SITE CONDITIONS AND BACKGROUND**

CERCLIS ID#:	TXN000606611
Category of Removal:	Time-Critical
Site ID#:	06ZQ
Latitude:	29.7944
Longitude:	-95.0625

A. Site Description & Environmental Threat

The site encompasses approximately 25 acres. The removal action is to stabilize the site, temporarily abating the release of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (and possibly PCBs) into the waterway, until the site is fully characterized and a remedy is selected.

The Site, as indicated in Attachment 1, is in Harris County in the State of Texas. The Site itself has no specific street address. The Site is comprised of an area of land with a set of two waste ponds with three surface impoundments built in the 1960s for disposal of pulp and paper mill wastes. The site is located on a 20-acre parcel on the western bank of the San Jacinto River, in Harris County, Texas, immediately north of the Interstate Highway 10 (I-10) bridge over the San Jacinto River. Prior to 1965, the two waste ponds were built by constructing berms within the estuarine marsh just north of what was then Texas State Highway 73 and is now I-10, west of the main river channel east of the City of Houston between two unincorporated areas known as Channelview and Highlands.

The waste paper sludge was placed in the two ponds on the Tract. Waste pond 1 is located on the western portion of the Tract totaling 132,386 square feet. Waste pond 2 which consists of two surface impoundments are on the eastern portion of the Tract totaling 46,182 square feet and 188,641 square feet respectively. Currently, the Tract is inactive and approximately half of the Tract's surface area, including the abandoned waste disposal ponds, is now submerged below the adjacent San Jacinto River's water surface.

The primary hazardous substances documented at the Site are polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. Dioxin concentrations as high as 41,300 parts per trillion have been found in sediment samples collected from the Tract's disposal pond areas and from river sediments near the Tract. Sediments contaminated with high levels of dioxin have been found in the San Jacinto River both upstream and downstream from the Tract due to tidal influences.

B. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans have been detected in sediment and surface water at the site. Dioxins and furans are "hazardous substances" as defined by Section 101 (14) of CERCLA, 42 U.S.C. §9601 (14).

C. NPL Status

The Site was proposed for listing on the National Priorities List ("NPL") on September 19,2007 (72 FR53509), and was placed on the NPL effective March 19,2008 (73 FR 14719).

D. Maps, pictures and other graphic representations

Attachment 1 Site Map with Waste Pits 1 and 2

Attachment 2 April 2, 2010 TCRA memorandum  
Attachment 3 June 15, 2010 Final RP TCRA technical memo  
Attachment 4 Harris County technical memo comments  
Attachment 5 Texas Commission on Environmental Quality technical memo comments  
Attachment 6 HVJ Comments on Anchor QEA Draft Design Memoranda

## 2. Current Actions

On July 17, 2009, EPA sent a Special Notice Letter to the Respondents offering them an opportunity to negotiate and enter into an Administrative Order on Consent ("AOC") covering the performance of the Remedial Investigation and Feasibility Study (RI/FS) of the Site. However, EPA never received a Good Faith Offer in which to begin negotiations of a RI/FS for the Site.

On November 20, 2009 EPA issued a Unilateral Administrative Order (UAO) to International Paper Company, Inc. and McGinnes Industrial Maintenance Corporation to conduct a RI/FS to study the nature and extent of contamination at the site.

On April 2, 2010 EPA determined an imminent and substantial (ISE) endangerment to public health and the environment at the San Jacinto River Waste Pits superfund site and issued a time critical removal action (TCRA) memorandum.

On May 11, 2010 EPA issued a Administrative Order on Consent (AOC) to International Paper Company, Inc. and McGinnes Industrial Maintenance Corporation to conduct a time critical removal action.

## III. TCRA MEMORANDUM

### A. Proposed Actions & Performance Criteria

The proposed action for the April 2, 2010 Action Memo (see Attachment 2) involves the immediate design and construction of a physical protective barrier surrounding waste ponds 1 and 2 that address the release or threat of release of dibenzo-p-dioxins and polychlorinated dibenzofurans into the San Jacinto River. In addition to a physical protective barrier to keep the waste secure, there is currently unrestricted public access at the site. Public access restrictions must be put in place immediately following the approval of this action memorandum. The public access restrictions should involve placement of security fences and signs to prevent trespassing onto the property. The security fencing will prevent access of unauthorized persons into the entire area containing the waste impoundments.

Any concentrations greater than or equal to 330 ng / kg of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) organic carbon normalized (or 4.5 ng / kg TCDD non-organic carbon normalized) in the sediment will be considered part of the source area of contamination within the original 1966 berm placement that must be addressed with the protective barrier. Any concentrations of less than 330 ng / kg of TCDD organic carbon normalized (or 4.5 ng / kg TCDD non-organic carbon normalized) found in the sediment will be addressed in future non-

time critical or remedial actions at the site.

The barrier design and construction must be structurally sufficient to withstand forces sustained by the river including any future erosion and be structurally sound for a number of years until a final remedy is designed and implemented. Also, the Houston area is visited by seasonal severe weather events (i.e. strong force winds or flooding) and the physical protective barrier must be structurally secure to withstand any potential future extreme weather events (i.e. Hurricane Ike of 2008).

## B. Performance Requirements

Analysis of TCRA alternatives involves the three evaluation elements of environmental effectiveness, cost, and implementability. The performance criteria listed in the TCRA memo dated April 2, 2010, along with the evaluation elements are summarized below:

- Control erosion of waste materials
  - Contamination from source materials from the waste pits are any soils or sediments located within the original 1966 berm footprint with concentrations greater than or equal to 330 ng/kg TCDD organic carbon normalized or 4.5 ng/kg TCDD non-organic carbon normalized.
  - Prevent erosion from upland runoff, river and tidal currents, waves, and propeller wash.
  - Technologies used to control erosion must be structurally sufficient to withstand forces sustained by the river including any future erosion and be structurally sound until a final remedy is designed and implemented.
- Prevent direct human contact with the waste materials.
  - Humans come into contact with the material accessing the Site by land and water.
- Prevent benthic contact with the waste materials.
  - Environmental monitoring in accordance with any long term remediation strategies will ensure compliance with this performance requirement.
- Ensure actions are consistent with any long term remediation strategies that may be developed for the Site.
  - The TCRA alternative chosen should not constrain with any future non-Time Critical Removal Action (NTCRA) and Remediation action.
- The effectiveness of the remedy to isolate waste or sediments of 2,3,7,8 TCDD from environmental exposure or transport offsite to addresses the release, or threat of release, of dioxins and furans into the San Jacinto River from the Site.
  - The implementation of an EPA approved TCRA and Remedial operation and maintenance (O&M) plan will detail the environmental sampling and monitoring requirements for the site to ensure performance requirements are being met for the selected removal option alternative.

- The ability of the TCRA alternative to withstand and remain in place and effective during and after extreme weather events.
  - Elements in the O&M plan will require compliance monitoring after designated weather events to ensure performance requirements are being met for the selected removal.
- The potential effectiveness of the technology to prevent benthic contact with the waste materials.
  - Elements in the O&M plan will require compliance monitoring to ensure performance requirements are being met for the selected removal.
- The potential effectiveness of the technology to prevent direct human contact with the waste materials.
  - Public access restrictions such as the placement of security fences and signs to prevent trespassing onto the property through land or water.
- The ensure environmental effectiveness and consistency of the technologies with any long-term remediation strategies for the Site.
- Availability of the materials, equipment, and skilled labor to implement the TCRA technologies.
- Prevent negative impacts of the TCRA alternative on river navigation and/or flood control.

#### **IV. PROPOSED TCRA ALTERNATIVES ANALYSIS**

##### **A. Proposed Alternative Descriptions**

In accordance with requirements in the May 17, 2010 TCRA AOC, the responsible parties submitted a technical memorandum providing an analysis of various TCRA alternative design options available that may satisfy the ISE determination specified in the TRCA Memo. Five alternatives were identified by the responsible parties and are summarized below. A detailed analysis of each alternative is provided in the document *Revised draft time critical removal action alternatives analysis San Jacinto River Waste Pits superfund site* (see Attachment 9).

##### **Alternative 1: Sheet Pile & Granular Cover**

- This alternative would involve the use of sheet piling (steel or composite) as physical barrier placed along the 1966 berm location (eastern and western portion) that would act as a physical barrier isolating the waste pits from the San Jacinto River. In addition, a granular cover consisting of appropriately designed sand, gravel, or rock would be used to contain and prevent contaminated waste and sediment from contaminating the environment. Estimated cost and construction time for alternative 1 is approximately \$5.8 million dollars and take six months to complete.

##### **Alternative 2: Sheet Pile, Granular Cover, Dredge, & Revetment**

- This alternative would involve the use of sheet piling (steel or composite) as physical barrier placed along the 1966 berm location (western portion) that would act as a physical barrier isolating the waste pits from the San Jacinto River. Dredging will be conducted along the northwestern portion of the waste pits in combination with the use of rock revetment along the perimeter of the waste pits for containment stability. In addition, a granular cover consisting of appropriately designed sand, gravel, or rock would be used to contain and prevent contaminated waste and sediment from contaminating the environment. Estimated cost and construction time for alternative 2 is approximately \$5.1 million dollars and take five months to complete.

#### Alternative 3: Granular cover and revetment

- This alternative would involve the use of a granular cover consisting of appropriately designed sand, gravel, or rock would be used to contain and prevent contaminated waste and sediment from contaminating the environment. Sheet piling is not being used along the perimeter of the waste pits for containment instead a rock berm will be used to isolate the waste pits from the San Jacinto River. Estimated cost and construction time for alternative 3 is approximately \$3.6 million dollars and take three months to complete.

#### Alternative 4: Rock berm, granular cover, and revetment

- This alternative is a hybrid of alternative 3 and would use a granular cover along the eastern waste pit and partial granular cover along with a geotextile cover in the western waste pit area. Estimated cost and construction time for alternative 4 is approximately \$4.0 million dollars and take three months to complete.

#### Alternative 5: ACBM and dredge

- This alternative would involve the use of an Articulated Concrete Block Matt (ACBM) technology that would be layered over the eastern and western waste pits used to contain and prevent contaminated waste and sediment from contaminating the environment. A rock submerged rock scour apron will be used along the perimeter of the waste pits to isolate contamination from the San Jacinto River. Estimated cost and construction time for alternative 5 is approximately \$7.0 million dollars and take three months to complete.

### B. Proposed TCRA Alternative Concerns

Each alternatives listed above have advantages and disadvantages that must be considered when choosing the most appropriate option that will satisfy the ISE determination specified in the TCRA memo. Site specific concerns have been submitted to EPA from Harris County (see Attachment 4) and the Texas Commission on Environmental Quality, TCEQ (see Attachment 5) with regards to the alternatives proposed by the responsible parties. A summary of all concerns raised from the county and state, other stakeholders are summarized below.

- Minimize public health and environmental threat from site contamination.
- Prevent spread and movement of site contamination.
- Storm event design number used for cover material calculation.

- Prevent impacts from flooding upstream and scouring on I-10 bridge downstream which may result from TCRA construction.
- Use of a combination of technologies (i.e. removal w/ containment).

## **V. PREFERRED TCRA ALTERNATIVE OPTION**

### **A. Modification to Proposed TCRA Alternative 3**

A modified version of TCRA alternative number three proposed by the respondents in the June 15, 2010 Technical Memo (Attachment 3) will satisfy the ISE determination specified in the TCRA memo and is the preferred alternative for immediate design and construction. The two modifications involve 1) the change of the design storm event calculation and 2) consider the use of a geo membrane or geo textile fabric technology for use underneath granular cover that will minimize or prevent movement of contaminants as colloids and diffusive loss of pore water preventing benthic and human contact.

Currently, the respondents are proposing to use a granular cover material sized and corresponding gradation to resist a 10 year return interval flow design storm event (see Appendix A, Attachment 3) for the cover on top of the waste pits to ensure containment. After consideration from comments received from Harris County (Attachment 4), TCEQ (Attachment 5), and independent review from a licensed professional engineer contracted by the EPA (see Attachment 6) a 10 year design storm event being proposed for alternative 3 is inappropriate.

TCRA performance measures are dependent upon the overall stability of the surrounding channel. Moreover, the performance measures are dependent upon the overall surrounding system of the channel, therefore alternative 3 cover material should utilize a design that considers storm events with a return period of 100 years. The TCRA design should follow design criteria specified by the 1994 U.S. Army Corps of Engineers document named "EM 1110-2-1601 entitled "Hydraulic Design of Flood Control Channels."

While the first modification for change of the design storm number to a 100 year return period is required; the second modification, is optional, but highly encouraged due to concerns of movement of contaminants as colloids.

### **B. Preferred TCRA Alternative**

This decision document represents the preferred alternative removal option for the implementation of the TCRA at San Jacinto River Waste Pits site near Houston, Harris County, Texas, is developed in accordance with CERCLA, 42 U.S.C. § 9601 *et seq.*, and consistent with the NCP, 40 CFR § 300. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP section 300.415(b)(2) criteria for the removal alternative and I recommend your approval of the preferred removal action alternative option stated above. No funding will come from the Regional removal allowance for this preferred removal action alternative option.

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Charles Faultry, Associate Director Remedial Branch  
Superfund Division

Attachments

LEOS:6SF-RL:X2283:re:06/29/10

WEBSTER	FAULTRY	WERNER	NANN	PEYCKE	SANCHEZ
6SF-RL	6SF-R	6SF-TE	6RC-S	6RC-S	6SF-RA



## Reference List

USACE. 1994. *Hydraulic Design of Flood Control Channels*. U.S. Army Corps of Engineers.  
Document No. EM 1110-2-1601